

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.–10. (Canceled)

11. **(Currently Amended)** A method comprising:

dynamically processing a database to eliminate missing values in records, each record to contain a plurality of values;

preparing a statistical summary of processed data in the database;

constructing **an alternating decision tree (“ADTree”) database structure to hold the statistical summary, wherein the ADTree database structure provides dynamic pruning of less frequently used branches when system memory is low;**

searching through possible relationship models to find a high-scoring network;
and

using the high-scoring network to compute a decision for a new case.

12. (Previously Presented) The method of claim 11, further comprising:

discretizing continuous variables in the database before preparing the plurality of statistical summaries.

13. (Previously Presented) The method of claim 11, further comprising:

modifying a relationship of the high-scoring network.

14. (Previously Presented) The method of claim 11 wherein the new case consists of values of a subset of fields of a record.

15. (Previously Presented) The method of claim 11 wherein records in the database represent bank customer transaction records, and the decision is to identify an at-risk customer of the bank.
16. (Previously Presented) The method of claim 11 wherein the statistical summary is a Bayesian model of correlations between data in records.
17. (Previously Presented) The method of claim 11 wherein the decision is one of a detection of an illegal financial transaction, a network fault diagnosis, or a prediction of a result of a pharmaceutical compound in an organism.
18. (Previously Presented) The method of claim 11, further comprising:
aggregating similar database records together; and
computing a frequency of occurrence for each of the aggregated records.
19. (Previously Presented) The method of claim 18 wherein aggregating comprises:
preparing a plurality of hashes to cluster the database records.
20. **(Cancelled)**
21. (Previously Presented) The method of claim 11 wherein the database structure comprises correlation statistics between nodes.
22. (Previously Presented) The method of claim 11, further comprising:
inferring a value of a non-observed variable based on a previous observation and the high-scoring network.
23. (Previously Presented) The method of claim 11, further comprising:

storing the high-scoring network in an eXtensible Markup Language (“XML”) format.